

CLAIMS

What is claimed is:

- 1 1. An apparatus comprising:
2 a cache management logistics to control a transfer of a trace;
3 a first cache coupled to the cache management logistics to evict the trace based on a
4 replacement mechanism; and
5 a second cache coupled to the cache management logistics to receive the trace based on a first
6 number of accesses to the trace.
- 1 2. The apparatus of claim 1 wherein the trace has a usage counter, the usage counter
2 being used to count the number of accesses to the trace.
- 1 3. The apparatus of claim 2 further comprising a comparator to compare a first threshold
2 value to the number of accesses to the trace, the first threshold value is a first fixed number or a first
3 dynamically adjusted number.
- 1 4. The apparatus of claim 3 wherein the trace is transferred from the first cache to the
2 second cache when the first threshold value is less than the number of accesses to the trace.
- 1 5. The apparatus of claim 3 wherein the trace is discarded from the first cache when the
2 first threshold value is more than or equal to the number of accesses to the trace.
- 1 6. The apparatus of claim 4 further comprising a level 2 (L2) cache to receive the trace,
2 the trace being transferred to the first or second cache for execution.
- 1 7. The apparatus of claim 6 wherein trace is transferred from the second cache to the L2
2 cache when a second threshold value is less than a second number of accesses to the trace, the second
3 threshold value being fixed or dynamically adjusted.
- 1 8. The apparatus of claim 4 wherein the trace is discarded from the second cache when a
2 second threshold value is more than a second number of accesses to the trace, the second threshold being
3 a fixed number or a dynamically adjusted number.
- 1 9. The apparatus of claim 8 wherein the second number of accesses to the trace is a
2 number of accesses to the trace counting from a time the trace first enters the first cache.
- 1 10. The apparatus of claim 1 wherein the replacement mechanism is a Least Recently Used
2 (LRU) mechanism.

- 1 11. A method comprising:
2 controlling a transfer of a trace;
3 evicting the trace based on a replacement mechanism; and
4 receiving the trace based on a first number of accesses to the trace.
- 1 12. The method of claim 11 further comprising counting the first number of accesses to the
2 trace.
- 1 13. The method of claim 12 further comprising comparing a first threshold value to the
2 number of accesses to the trace, the first threshold value is a first fixed number or a first dynamically
3 adjusted number.
- 1 14. The method of claim 13 further comprising transferring the trace from the first cache to
2 the second cache when the first threshold value is less than the number of accesses to the trace.
- 1 15. The method of claim 13 further comprising discarding the trace from the first cache
2 when the first threshold value is more than or equal to the number of accesses to the trace.
- 1 16. The method of claim 14 further comprising receiving the trace by the second level (L2)
2 cache, the trace being transferred to the first or second cache for execution.
- 1 17. The method of claim 16 further comprising transferring the trace to the L2 cache when
2 a second threshold value is less than a second number of accesses to the trace, the second threshold value
3 being fixed or dynamically adjusted.
- 1 18. The method of claim 14 further comprising discarding the trace when a second
2 threshold value is more than a second number of accesses to the trace, the second threshold being a fixed
3 number or a dynamically adjusted number.
- 1 19. The method of claim 18 wherein the second number of accesses to the trace is a
2 number of accesses to the trace counting from a time the trace first enters the first cache.
- 1 20. The method of claim 11 wherein the replacement mechanism is a Least Recently Used
2 (LRU) mechanism.
- 1 21. A system comprising:
2 an execution unit; and
3 cache unit couple to the execution unit to provide the execution unit a trace, the cache unit
4 comprising:

5 a cache management logistics to control a transfer of the trace;
6 a first cache coupled to the cache management logistics to evict the trace based on a
7 replacement mechanism; and
8 a second cache coupled to the cache management logistics to receive the trace based on a first
9 number of accesses to the trace.

1 22. The system of claim 21 wherein the trace has a usage counter, the usage counter being
2 used to count the number of accesses to the trace.

1 23. The system of claim 22 further comprising a comparator to compare a first threshold
2 value to the number of accesses to the trace, the first threshold value is a first fixed number or a first
3 dynamically adjusted number.

1 24. The system of claim 23 wherein the trace is transferred from the first cache to the
2 second cache when the first threshold value is less than the number of accesses to the trace.

1 25. The system of claim 23 wherein the trace is discarded from the first cache when the
2 first threshold value is more than or equal to the number of accesses to the trace.

1 26. The system of claim 24 further comprising a level 2 (L2) cache to receive the trace, the
2 trace being transferred to the first or second cache for execution.

1 27. The system of claim 26 wherein trace is transferred from the second cache to the L2
2 cache when a second threshold value is less than a second number of accesses to the trace, the second
3 threshold value being fixed or dynamically adjusted.

1 28. The system of claim 24 wherein the trace is discarded from the second cache when a
2 second threshold value is more than a second number of accesses to the trace, the second threshold being
3 a fixed number or a dynamically adjusted number.

1 29. The system of claim 28 wherein the second number of accesses to the trace is a number
2 of accesses to the trace counting from a time the trace first enters the first cache.

1 30. The system of claim 21 wherein the replacement mechanism is a Least Recently Used
2 (LRU) mechanism.